

## A SEMICONDUCTOR PASSIVE Q-SWITCH PROVIDING VARIABLE OUTPUTS

5

### ABSTRACT

A semiconductor wafer with variable transmittance, serves as a saturable absorber for performing passive Q-switching in a laser system to produce laser pulses having defined output characteristics. By translating or rotating the semiconductor saturable absorber, loss properties of a laser cavity may be altered. In this manner, the output characteristics of the laser pulses can be varied without changing other parameters of laser operation. The output characteristics may include pulse duration, pulse repetition rate, peak power and average output power of the laser pulses. The semiconductor wafer can be made of doped or undoped GaAs, AlGaAs, InP, etc. Furthermore, the tunable Q-switch may simultaneously serve as an output coupler for the laser cavity.